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An Introduction to the Special Issue: Logics and Their Interpretations I

We find ourselves in a time when logic is often referred to and talked about not only in academic contexts but also in everyday life. It is sometimes described as a tool to deal with a variety of different issues, problems, and tasks. However, as interesting as all of these may be, the question can still be posed of whether these are all rightful demands on logics and logical systems. The aim of the articles included in this volume of the special issue on logics and their interpretations is to contribute to the debate about what an adequate conception of logic should be and about what the conceptual consequences are of the particular answers that one might propose.

As the title of this special issue implies, one of the key notions that is crucial for achieving a comprehensive understanding of the role of logic is that of *interpretation*. For if a logical system is to have any significance beyond that of a mere mathematical structure, then it appears that it must be possible to endow it with some sort of interpretation (and this holds true even in those cases in which only a certain technical application is envisaged). However, what an interpretation of a logical system really amounts to is far from being fully understood, and the fact that the same system may be susceptible of rival interpretations raises questions as to how are we supposed to describe the relationships between them. This latter issue leads us, in turn, to ponder the adequacy conditions for an interpretation of a logical system, especially when it is challenged by seemingly better alternative readings. Moreover, the notion of interpretation bears directly on such important debates in the philosophy of logic, such as those concerning the nature of logic, logical

monism and logical pluralism, identity criteria between logical systems, and the (non-)revisability of logic.

Though philosophical questions concerning the notion of interpretation may be raised with respect to any logic whatsoever, they become particularly pressing when it comes to paraconsistent logics. Because they call into question fundamental assumptions that have been deeply entrenched in the traditional conception of logic, and because there have been radically opposing views on paraconsistency, any attempt to motivate and justify the adoption of one or another paraconsistent logic is bound to describe the nature of the contradictions that are supposed to be tolerated — which, of course, calls for a more general understanding of the notion of interpretation of a logical system.

Some articles gathered in this volume, such as the ones by Jaroslav Peregrin and Vladimír Svoboda, and by Diego Tajer and Camillo Fiore, are mainly concerned with (but not limited to) the aforementioned general issues in the philosophy of logic, while others, viz., the ones by Bruno Da Ré, Mariela Rubin, and Paula Teijeiro, Federico Boem and Stefano Bonzio, Jonas R. Becker Arenhart and Ederson S. Melo, and by Abilio Rodrigues and Walter Carnielli, deal specifically with interpretations of paraconsistent logics. The article by Antonina Konkova and Maria Legeydo concerns non-traditional approaches to syllogistics that also bear on issues concerning paraconsistency and non-classical logics.

In “Logica dominans vs. logica serviens”, Jaroslav Peregrin and Vladimír Svoboda discuss two opposing views about the nature and the role of logic. The first view, called *logica dominans*, maintains that logic primarily governs our reasoning, while the second view, called *logica serviens*, that it primarily serves us as a tool. The authors present detailed assessments of each view, and argue against the first on the grounds that it appeals to such controversial notions as *genuine reasoning* and *genuine language*. Thus, they favor the *logica serviens* view, according to which logical theories are designed by us to be useful models of our actual inferential practices.

Diego Tajer and Camillo Fiore’s “Logical pluralism and interpretations of logical systems” concerns the *logical monism vs. pluralism* debate. Specifically, it describes a view the authors call *interpretational logical pluralism*, which maintains that there is more than one *correct logic*, where ‘correct logic’ is taken to mean that the logic in question has some adequate *interpretation*. The paper presents different formulations of such a view and assesses the prospects of each version by

analyzing how it fares with the so-called *collapse argument* against logical pluralism. The paper also sheds light on the notion of *interpretation* by proposing valuable conceptual distinctions about what it means to interpret a logical system.

In “Metainferential paraconsistency”, Bruno Da Ré, Mariela Rubin, and Paula Teijeiro propose an alternative definition of a *metainferential paraconsistent logic* to the one originally formulated by Barrio et al. [2018]. The paper makes valuable contributions to our understanding of what a paraconsistent logic is by interpreting paraconsistency not only as an inferential property, but also as property of higher inferential levels. It also deepens our knowledge about how to distinguish a particular logical system from other seemingly identical ones, contributing thus to the quest for identity criteria between logics.

In “A logic for a critical attitude?”, Federico Boem and Stefano Bonzio articulate an epistemic interpretation of paraconsistent weak Kleene (PWK), also known as Halldén’s logic, and of a particular extension thereof, viz., Halldén’s external calculus (H_0). Their interpretation takes these two logics as describing certain epistemic attitudes of agents with respect to statements, namely, *believing*, *disbelieving*, and *suspending judgment*. The authors argue that H_0 is capable of faithfully modeling the attitudes adopted by scientists with respect to their theories, especially in view of the fact they may be uncertain about some scientific statements and hypotheses.

Jonas R. Becker Arenhart and Ederson S. Melo’s “The liar paradox: between evidence and truth” considers whether the *epistemic approach* to paraconsistent logics, proposed and advocated, for example, in [Carnielli et al., 2018; Carnielli and Rodrigues, 2015, 2019, 2021], is able to deal with the Liar paradox in a satisfactory manner. After presenting an illuminating description of the epistemic approach which analyzes its core theses, the authors argue that the Liar poses a dilemma to the approach which defies its capacity to satisfactorily accommodate the paradox. Thus, the paper casts doubts on the alleged generality of the epistemic approach, arguing that it cannot deal with one of the main motivations for what its defenders take to be its opposing view, viz., the *dialetheist* interpretation of paraconsistent logics.

In “On Barrio, Lo Guercio, and Szmuc on logics of evidence and truth”, Abilio Rodrigues and Walter Carnielli respond to criticisms that have been raised against the epistemic approach to paraconsistent logics and clarify one of its key notions, viz., *evidence*. The authors propose an

understanding of this notion according to which non-conclusive evidence is a non-factive and objective justification and argue that this characterization is in line with both common usage and analyses that have been recently advanced by epistemologists. Rodrigues and Carnielli reply to the criticisms raised in [Barrio, 2018], which concern the notion of interpretation (of a logical system), and the ones raised in [Guercio and Szmuc, 2018], which maintain that according to the epistemic approach it is rational to accept a contradiction. While responding to both criticisms, the authors clarify some of the concepts and theses that make up the epistemic approach.

Finally, in “Intensional semantics for syllogistics: what Leibniz and Vasiliev have in common”, Antonina Konkova and Maria Legeydo present intensional interpretations of syllogistics, which can be traced back to the works of Leibniz and are in stark contrast to the traditional, extensional, approach. More specifically, rather than interpreting the terms that occur in a categorical proposition as referring to classes or sets of individuals, the intensional approach take them refer to classes of attributes instead. Konkova and Legeydo also consider in the paper the non-classical approaches to syllogistics proposed by the Russian logician Nikolai Vasiliev.

References

- Barrio, E., 2018, “Models and proofs: LFIs without a canonical interpretation”, *Principia: An International Journal of Epistemology*, 22: 87–112. DOI: [10.5007/1808-1711.2018v22n1p87](https://doi.org/10.5007/1808-1711.2018v22n1p87)
- Barrio, E., F. Pailos and D. Szmuc, 2018, “What is a paraconsistent logic?”, pages 89–108 in W. Carnielli and J. Malinowski (eds.), *Contradictions: From Consistency to Inconsistency*, Trends in Logic, Springer. DOI: [10.1007/978-3-319-98797-2_5](https://doi.org/10.1007/978-3-319-98797-2_5)
- Carnielli, W., M. Coniglio and A. Rodrigues, 2018, “On formal aspects of the epistemic approach to paraconsistency”, pages 49–74 in M. Ruffino, M. Freund and M. F. de Castro (eds.), *Logic and Philosophy of Logic. Recent Trends in Latin America and Spain*, College.
- Carnielli, W., and A. Rodrigues, 2015, “On the philosophy and mathematics of the logics of formal inconsistency”, pages 57–88 in J.-Y. Béziau, M. Chakraborty and S. Dutta (eds.), *New Directions in Paraconsistent Logic*, Springer. DOI: [10.1007/978-81-322-2719-9_3](https://doi.org/10.1007/978-81-322-2719-9_3)

- Carnielli, W., and A. Rodrigues, 2019, “An epistemic approach to paraconsistency: a logic of evidence and truth”, *Synthese*, 196 (1): 3789–3813. DOI: [10.1007/s11229-017-1621-7](https://doi.org/10.1007/s11229-017-1621-7)
- Carnielli, W., and A. Rodrigues, 2021, “On epistemic and ontological interpretations of intuitionistic and paraconsistent paradigms”, *Logic Journal of the IGPL*, 29 (4): 569–584. DOI: [10.1093/jigpal/jzz041](https://doi.org/10.1093/jigpal/jzz041)
- Lo Guercio, N., and D. Szmuc, 2018, “Remarks on the epistemic interpretation of paraconsistent logic”, *Principia: An International Journal of Epistemology*, 22: 153–170. DOI: [10.5007/1808-1711.2018v22n1p153](https://doi.org/10.5007/1808-1711.2018v22n1p153)

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